



DataUp Add-In Programmer's Guide



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Version History

Version	Date	Notes
1.0	2/15/13	Initial Draft
1.1	2/25/13	First release
1.2	5/3/13	Minor edits

About the DataUp Project

In today's technologically advanced world, the data generated by researchers is increasingly born digital and subject to intensive transformation and analyses before publication. The various file formats, software, and hardware required to succeed in the modern research landscape can become daunting, especially since education about digital data management has not kept pace with these technological advancements. There is a significant gap between the data management skills needed by modern researchers and their current abilities; the gap is more noticeable given the current increase in funder requirements for data management plans and requests by journal publishers to make supporting data publicly available alongside traditional research articles.

The DataUp project was born out of this need for seamless integration of data management into the researchers' current workflows. We recognized that the large majority of Earth, environmental, and ecological scientists use spreadsheets in the course of their data collection and organization; rather than requiring they learn a new program, we decided to meet them where they already work: Microsoft® Excel and related spreadsheet software.

The DataUp project's goals were to facilitate data management, sharing, and archiving for scientists. The resulting tools from the DataUp project are part of the Investigator Toolkit for DataONE, an NSF DataNet project building cyber-infrastructure that links together existing archives of ecological and environmental scientific data. The OuterCurve Foundation holds the code's copyright and DataUp is part of their Research Accelerators Gallery.

The DataUp project is run through the University of California Curation Center (UC3) at the California Digital Library, a division of the University of California Office of the President. Project funders were the Gordon and Betty Moore Foundation and Microsoft Research Connections.

Contents

1	Introduction.....	3
2	Excel.AddIn Folders.....	3
3	Excel.BizLogic Folders.....	9
4	Excel.Common Folders.....	14
5	Additional References.....	17

1 Introduction

The DataUp Excel add-in is a Model-View-Controller (MVC) based program that emphasizes reusable code and a separation of concerns. As with all MVC applications, the DataUp add-in is divided into three components: controller, model, and view.

2 Excel.AddIn Folders

This section provides information for files, functions, or classes that are used in the Excel.Addin folders.

Table 1: Excel.Addin Folder

Name	Description
CustomTaskPaneHost	Required designer variable. Host control for Custom Task Pane.
Dispose	Cleans up any resources being used.
InitializeCustomTaskPane	Initializes the custom task pane.
InternalStartup	Required for Designer support. Do not modify the contents of this method with the code editor.
Ribbon_Load	Sets the Excel application to Common.Globals so it can be used in the local add-in.
ThisAddIn	Loads the plug-in and sets or gets the Excel application object.
ThisAddIn_Shutdown	Triggers when the plug-in gets released. This procedure is handled by VSTO and should be used if you need to preform additional actions before the plug-in releases and closes.
ThisAddIn_Startup	Add-in startup event. Contains the data that can be passed from the event sender and is inherited from the System.EventArgs class.

Table 2: Excel.Addin Controller Folder

Name	Description
CacheRepositoryDetails	Gets the repository cache details list.
Controller	Creates general information such as the user name, today's date, title of dataset, key words, repository name and contact information.
Instance	Gets Controller instance.

Table 3: Excel.Addin View Folder

Name	Description
AlertMessage	Class members include IsCancelButtonClicked, Model, AlertMessage().
ErrorPane	Class members include ErrorPane(), Model.
RepositoryViewPane	Class members include Model, Password.
PostFileViewPane	Class members include Model, Password.

Table 4: Excel.Addin Extensions Folder

Name	Description
ErrorDetailExtension	Member of SetValuesFrom(ErrorDetail,ErrorDetailViewModel)
MetadataDetailExtension	Members include SetValuesFrom(MetadataDetail, MetadataViewModel), SetKeyValuesFrom(KeyValue,MetadataViewModel)
MetadataViewModelExtensions	Members include SetValuesFrom(MetadataViewModel, MetadataDetail), SetCitationValuesFrom(MetadataDetail, MetadataDetail)

Table 5: Excel.Addin Helpers Folder

Name	Description
CanExecute	Defines the method that determines whether the command can execute in its current state. Objects can be set to null if the command does not require data to be passed.
Delegate Command	Member DelegateCommand initializes new instance of the DelegateCommand class.
ErrorPaneDataTemplateSelector	Members include SummaryTemplate, SheetTemplate, SelectTemplate(object, DependencyObject).
Excecute	Defines the method to be called when the command is invoked. Objects can be set to null if the command does not require data to be passed.
HandlePasswordChange	Sets flag to indicate the password is getting updated and pushes the new password into the BoundPassword property.
LocalizedStrings	Initializes a new instance of the LocalizedString class and gets the resources instance.
OnBindPasswordChanged	When the BindPassword attached property is set on a password box, this starts listening to the PasswordChange event.

Table 6: Excel.Addin Obj Folder

File Name	Description
AlertMessage.g.i.cs	Use caution when modifying these files. The code was generated by a tool and changes to this file may cause incorrect behavior and will be lost if the code is regenerated. Runtime version 4.0.30319.296.
ErrorPane.g.i.cs	
GenerateCitationViewPane.g.i.cs	
GeneratedInternalTypeHelper.g.i.cs	
MetadataViewPane.g.i.cs	
PostWizard.g.i.cs	
RepositoryViewPane.g.i.cs	
RepositoryWindow.g.i.cs	
TaskPane.g.i.cs	
UserCredentials.g.i.cs	

Table 7: Excel.Addin Properties Folder

Name	Description
AssemblyInfo.cs	General information about an assembly is controlled through the following attributes: AssemblyTitle, AssemblyDescription, AssemblyConfiguration, AssemblyCompany, AssemblyProduct, AssemblyCopyright, and CLSCompliant.
ComVisible attribute	Setting this to false make the types in this assembly not visible to COM components. If you need to access a type in this assembly from COM, set the COMVISIBLE attribute to true on that type.
Resources.Designer.cs	Use caution when modifying this file. The code was generated by a tool and changes to this file may cause incorrect behavior and will be lost if the code is regenerated. Runtime version 4.0.30319.296.
Resources	A strongly-typed resource class, for looking up localized strings. This class was auto-generated by StronglyTypedResourceBuilder via a tool like ResGen or VisualStudio. To add or remove a member, edit the .ResX file then rerun ResGen with the /str option or rebuild your VS project.
ResourceManager	Returns the cached ResourceManager instance used by this class.
Culture	Overrides the current thread's CurrentUICulture property for all resource lookups using this strongly typed resource class.
CacheNotExist	Looks up a localized string similar to "Cache does not contain any stored values."
CheckXSLErrors	Looks up a localized string similar to "There are embedded objects in the data file. Would you like to remove all of them?"
ContinueButtonLabel	Looks up a localized string similar to "Continue?"
CSVCompatibility	Looks up a localized string similar to "Would you like to check for CSV compatibility?"
DialogTitle	Looks up a localized string similar to "DataUp."
EnterFields	Looks up localized string similar to "Please enter al fields."
EnterMetadatalist	Looks up localized string similar to "Please provide the values for the following metadata fields."
FixCSV	Looks up a localized string similar to "Would you like to fix all CSV compatibility errors automatically? This action may result in losing embedded images, charts, graphs, or other objects."
GenerateMetadata	Looks up localized string similar to "Metadata is missing. Would you like to generate Metadata?"

Name	Description
IdentifierExist	Looks up localized string similar to <i>"Identifier for the document already exists. Would you like to overwrite existing identifier?"</i>
IdentifierMissing	Looks up localized string similar to <i>"Identifier for this document is missing. Would you like to acquire the identifier from repository?"</i>
IgnoreButtonLabel	Looks up a localized string similar to <i>"Ignore."</i>
InformUserCsv	Looks up localized string similar to <i>"Publish file as CSV will remove all embedded images, charts, graphs, and other objects from the workbook."</i>
MissingCitation	Looks up localized string similar to <i>"Citation for this document is missing. Would you like to generate citation or continue without citation?"</i>
ParameterMetadataDescription	Looks up a localized string similar to <i>"Please select a range of cells from worksheet."</i>
ParameterMetadataTitle	Looks up localized string similar to <i>"Parameter Metadata."</i>
PasswordRequired	Looks up a localized string similar to <i>"Password cannot be blank, please enter the password."</i>
RegeneratedIdentifier	Looks up localized string similar to <i>"Please provide the values for the following metadata fields and re-acquire the identifier."</i>
RegistryClear	Looks up localized string similar to <i>"Cache has been cleared."</i>
RemoveCSVErrors	Looks up localized string similar to <i>"There are embedded objects in the data file. All embedded objects will be deleted. Would you like to continue?"</i>
RemoveErrors	Looks up localized string similar to <i>"Would you like to remove all embedded images, charts, graphics, and other objects from the workbook?"</i>
RemoveXSLErrors	Looks up localized string similar to <i>"All embedded object will be removed. Would you like to proceed?"</i>
RequiredMetadata	Looks up localized string similar to <i>"Following required metadata values for citation are missing."</i>
SelectRange	Looks up localized string similar to <i>"Selected range is empty or not valid. Please select a non-empty range or a valid range."</i>
SuccessPostMessage	Looks up localized string similar to <i>"Your data file was submitted successfully. You will receive an email shortly with your unique identifier and submission information."</i>
Settings.Designer.cs	Use caution when modifying this file. The code was generated by a tool and changes to this file may cause incorrect behavior and will be lost if the code is regenerated. Runtime version 4.0.30319.296.

Table 8: Excel.Addin ViewModels Folder

Name	Description
Category	Gets or sets the category of error.
CategoryHighCount	Gets or sets total number of errors for high category.
CategoryLowCount	Gets or sets total number of errors for low category.
CategoryMediumCount	Gets or sets total number of errors for medium category.
Description	Gets or sets description.
DisplayErrorAddress	Gets or sets Address of the error
Error	Gets or sets the type of error.
ErrorAddress	Gets or sets Address of the error.
Errors	Gets or sets the errors.
FixableErrorCount	Gets or sets total number of errors that can be fixed.
GetIdentifierCompleted	Capture View window close request.
IsBusy	Gets or sets value indicating whether the system is busy processing data.
IsChecked	Gets or sets value indicating whether the error can be removed automatically or not.
IsRemovable	Gets or sets value indicating whether the error can be removed automatically or not.
OnNotifyPropertyChanged(string)	This is the method that should be called by derived classes to raise the property change event notification so that the binding system refreshes the data on the UI.
OnRequestClose	Raise window close event.
PropertyChanged	This event is handled by the binding system to refresh the data when the value is changed.
Recommendation	Gets or sets Recommendation.
RequestClose	Capture view window close request.
SaveButtonExecute	Saves the metadata sheet on Next button click.
Sheets	Gets or sets the details of the sheet.
SheetName	Gets or sets file or worksheet name.
Title	Gets or sets title.
TotalErrorCount	Gets or sets the TotalErrorCount.
UnFixableErrorCount	Gets or sets total number of errors that cannot be fixed.
ViewModelBase	This is the base class to be used by all viewModels that want the property change notifications to be raised for the binding system.

3 Excel.BizLogic Folders

This section provides information for files, functions, or classes that are used in the Excel.BizLogic folders.

Table 9: Excel.BizLogic Extensions Folder

Name	Description
ClearParameter	Clears parameter metadata table.
GetExistingMetadata	Gets the metadata list from the given worksheet.
GetHeaderRow	Gets the header row of the given range.
UpdateMetadata	Updates metadata in the given worksheet
UpdateparaMetadata	Updates the list of parameter metadata in the given worksheet
WorkbookExtensions	Extensions for workbook class
XLGetComments	Retrieve a List of all the comments in a workbook.
XLGetChart	Retrieve a List of all the charts in a workbook. Given an Excel workbook, and the title of a chart to export, create a new XML file containing the chart. Although the chart won't be loadable in Excel, you could extract the chart from it at a later date.
XLGetShapes	Retrieve a List of all the shapes in a workbook.
XLGetNonContiguous	Retrieve a List of all non contiguous data in a workbook
XLGetMixedType	Retrieve a List of all the mixed type in a workbook.
XLGetCellRelatedErrors	Retrieve a List of all the color coded cells in a workbook.

Table 10: Excel.BizLogic Interfaces Folder

Name	Description
ClearAllParameter	Clears the parameter metadata.
FixAll	This function can be used to fix all errors in the given workbook. When set to True, the fix is successful, otherwise False.
FixError	This function can be used to fix the error in the given workbook. When set to True, the fix is successful, otherwise False.
FixErrors	This function is used to fix the list of errors in the given workbook.
GetCsvZipFile	This method is used to convert the given workbook to csv files and then compress.
GetDocumentProperties	Gets the default document properties.
GetHeaderRow	This function can be used to get the details of the parameter metadata.
GetIdentifier	Gets an identifier from repository.
GetMetadata	This function can be used to get the details of the

Name	Description
	metadata.
GetParameterMetadata	Get the list of parameter metadata
GetUserAgreement	Gets the user agreement for the given repository.
GetRespositories	This method if used to get the list of repositories.
GetSheetNames	Gets list of all sheet names in the current workbook.
GetWorkbookName	Gets the workbook name.
GetXslFilePath	Gets the temp path of the XLS file.
IExcelManager	Interface for managing Excel errors.
IsGeneralMetadataPresent	Check if the metadata table is available or not.
IsMetadataSheetAvailable	Check if the metadata sheet is available or not.
IMetadataManager	Interface for managing Excel errors.
IRepositoryManager	Interface for validating for errors in the underlying Excel file.
PostAsCSV	Post file as CSV.
PostAsXSL	Post file as XLS.
PublishFile	Publish file to repository.
Select	This function is used to Select the error in the given workbook.
UpdateMetadata	Updates the metadata.
UpdateParaMetadata	Updates the parameter metadata.
Validate	This function can be used to validate Excel for CSV compatibility errors.

Table 11: Excel.BizLogic Managers Folder

Name	Description
ClearAllParameter	Clears the parameter metadata.
ExcelManager	Implements IExcelManager and creates an instance of class ExcelManager.
FixAll	This function can be used to fix all errors in the given workbook.
FixError	This function can be used to fix the error in the given workbook.
FixErrors	This function can be used to fix the error in the given worksheet.
GetCsvZipFile	This method is used to convert the given workbook to a CSV file and then compress.
GetDocumentProperties	Gets the default document properties.
GetHeaderRow	This function can be used to get the details of the parameter metadata.
GetIdentifier	Gets an identifier from the repository.
GetMetadata	This function can be used to get the details of the metadata.
GetParameterMetadata	Get the list of parameter metadata
GetRepositories	This method gets a list of repositories.
GetSheetNames	Gets list of all sheet names in the current workbook.
GetUserAgreement	Gets the user agreement for the given repository.
GetWorkbookName	Gets the workbook name.
GetXslFilePath	Gets the temporary path of the XLS file.
IsGeneralMetadataPresent	Check if metadata table is available or not.
IsMetadataSheetAvailable	Check if the metadata sheet is available or not.
MetadataManager	Creates an instance of MetadataManager class.
PublishFile	Publish file to repository.
Select	This function is used to Select the error in the given workbook.
UpdateMetadata	Updates the metadata.
UpdateParameterMetadata	Updates the parameter metadata.
Validate	This function can be used to validate the Excel for CSV compatibility errors.
Workbook	Gets or sets the workbook instance associated with the Excel manager.

Table 12: Excel.BizLogic Models Folder

Name	Description
Authorization	Gets or sets authorization.
Category	Gets or sets the category of error
Content	Gets or sets the content of the file.
ControlName	Gets or sets the name of the control
CreateFailureStatus	Creates failure status.
CreateSuccessStatus	Creates success status.
Description	Gets or sets the Description of the error or metadata, depending on which file the class is used in.
Error	Gets or sets the type of error
ErrorAddress	Gets or sets the address / unique identifier of the error.
FieldType	Gets or sets the field type of metadata.
FileName	Gets or sets the name of the file.
Identifier	Gets or sets the identifier of the file.
IsCompressed	Gets or sets the value indicating whether the file is compressed or not.
IsRemovable	Gets or sets value indicating whether the error can be removed automatically or not.
IsRequired	Gets or sets the value indicating whether the metadata is required or not.
IsSuccess	Gets or sets the value indicating whether the operation is successful or not.
Message	Gets or sets the message of the response.
Name	Gets or sets the name of metadata.
Recommendation	Gets or sets the recommendation for the error.
RepositoryName	Gets or sets name of the repository.
SheetName	Gets or sets the name of the sheet.
Type	Gets or sets the type of metadata.
Units	Gets or sets the units of parameter metadata.
Value	Gets or sets value of metadata.
What	Gets or sets what detail.
When	Gets or sets when detail.
Who	Gets or sets who detail.

Table 13: Excel.BizLogic Properties Folder

File Name	Description
AssemblyInfo.cs	General information about an assembly is controlled through the following set of attributes. AssemblyTitle, AssemblyDescription, AssemblyConfiguration, AssemblyCompany, AssemblyProduct, AssemblyCopyright, and CLSCompliant. Change these attribute values to modify the information associated with an assembly.

Table 14: Excel.BizLogic Repositories Folder

Name	Description
Clear	Clear values.
IsAgreementAccepted	Gets or sets the value indicating whether the user agreement is accepted or not.
IsPasswordRequired	Gets or sets the value indicating whether the password is required or not for the repository.
RepositoryName	Gets or sets the name of the repository.
RepositoryType	Gets or sets the type of the repository.
UserName	Gets or sets the username of the repository.
UserPassword	Gets or sets the password of the repository.

Table 15: Excel.BizLogic Service References Folder

Name	Description
RepositoryDataContext	There are no comments for RepositoryDataContext in the schema.
ResolveNameFromType	Since the namespace configured for this service reference in Visual Studio is different from the one indicated in the server schema, use type-mappers to map between the two.
ResolveTypeFromName	Since the namespace configured for this service reference in Visual Studio is different from the one indicated in the server schema, use type-mappers to map between the two.

4 Excel.Common Folders

This section provides information for files, functions, or classes that are used in the Excel.Common folders.

Table 16: Excel.Common Folder

Name	Description
AddinTraceSource	Gets trace source that will be used for tracing and logging.
AppRegistryKey	Sets the application registry key.
AppRegistryPath	Sets the application registry path.
CitationContent	Citation field name.
CitationFormat	Citation format.
CitationXmlPath	Gets CitationXmlPath.
DcxIWebServiceLink	Gets DataUp Web Service Link.
DefaultDateFormat	Default date format supported.
DemoVideoLink	Gets DataUp Demo Video Link.
GetAppInstallationLocation	This method reads the registry to obtain the application installation location.
GetExcelColumnName	Gets the alphabet that represents the given column number.
GetIdentifierProfile	Gets profile string value for GetIdentifier request.
GetPostProfile	Gets Profile string value for Post request
GetStandardUnits	This method gets the list standard units supported.
Globals	Global state to be used by all
Helper	Helper class.
HttpAddress	Identifier field name.
Identifier Key Name	Identifier field name.
LogException	Constructs and logs the exception message.
MaxErrorCount	Sets max error count.
MetadataRangeName	Metadata range name.
MetadataSheetName	Metadata sheet name.
MetadataTableName	Metadata table style name.
MetadataXmlPath	Gets MetadataXmlPath.
ParameterMetadataType	Sets ParameterMetadataType.
PostFileTimeOutMinutes	Gets post file timeOut in minutes.
SpecialCharacter	Gets the special character regex from app config.
SpecialCharKeySequence	Gets the special character key sequence regex from app config.
StandardUnitsPath	Gets StandardUnitsPath.
ValidateEmail	Regular expression for validating email address.
ValidatePhone	Regular expression for validating Phone.

Table 17: Excel.Common Extensions Folder

Name	Description
ActiveSheet	Activates the sheet.
CheckNotNull	Checks whether the given parameters are null or not. In case of null, throws Argument null exception.
DecodeFrom64	The extension method can be used to decode the base 64 encoded string.
DeserializeXML	Gets the decoded version of the string.
EncodeTo64	The extension method creates a Base64 encoded string from a normal string.
EnumExtensions	Class having the extension methods needed for Enums.
EventHandlerExtensions	Contains extension methods for raising (firing) events.
GetDataArray	This function can be used to retrieve the data for the selected range in array format.
GetMetadataTable	Gets the metadata table.
GetParaMetadataTable	Gets parameter metadata table.
GetSheetNames	Gets all the sheets in the given workbook.
GetValidRange	Gets the valid range from the workbook.
IsEmpty	Checks if the given range or worksheet is empty or not.
IsValid	Checks if the sheet is valid or not.
ObjectExtensions	Class having the extension methods needed for all Objects.
OnFire	Fires the specified event handler delegate with the specified sender and event arguments.
RemoveMetadataTable	Removes the metadata table from the current worksheet.
SerializeExtensions	Class having the extension methods needed for Serialization
SerializeObject	This method can be used to serialize any object usingDataContractSerializer.
SerializeToString	Serializes the XML content and returns the content as a string.
SerializeToXML	Gets the decoded version of the string.
ToEnum	Converts a string or an integer value to respective Enum.
XLCreateMetadataWorksheet	Creates metadata worksheet.
XLGetDocumentProperties	Gets the default properties of the current workbook.
XLGetMetadataWorksheet	Gets the metadata worksheet instance from the workbook. If the metadata sheet is not present then it will create one and then return the worksheet instance.
XLGetLastWorksheet	Gets the last workbook instance.
XLGetWorksheet	Gets the worksheet instance from the workbook from the specified worksheet name.

Name	Description
XLRemoveChart	Remove the charts in a workbook.
XLRemoveCharts	Remove all the charts in a workbook. Given an Excel worksheet, and the title of a chart to export, create a new XML file containing the chart. Although the chart won't be loadable in Excel, you could extract the chart from it at a later date.
XLRemoveColourCell	Remove the color-coded cells in a workbook.
XLRemoveColourCells	Remove all the color-coded cells in a workbook.
XLRemoveComment	Remove the comment in a workbook.
XLRemoveComments	Remove all the comments in a workbook.
XLRemoveMergedCells	Remove all the merged cells in a workbook.
XLRemoveRange	Remove the merged cells in a workbook.
XLRemoveShape	Remove the shapes in a workbook.
XLRemoveShapes	Remove all the shapes in a workbook for a given sheetname.
XLRemoveSheet	Removes the specified sheet from workbook.
XLRemoveTable	Remove the tables in a workbook.
XLRemoveTables	Remove all the tables in a workbook.
XLSelectBlank	Selects the blank cells in a workbook.
XLSelectChart	Selects the charts in a workbook.
XLSelectColourCoded	Selects the color cells in a workbook.
XLSelectComma	Selects the comma cells in a workbook.
XLSelectComment	Selects the comments in a workbook.
XLSelectMixedType	Selects the mixed type in column in a workbook.
XLSelectNonContiguous	Selects the mixed type in column in a workbook.
XLSelectRange	Selects the merged cells in a workbook.
XLSelectShape	Selects the shapes in a workbook.
XLSelectSheet	Selects the sheets in a workbook.
XLSelectSpecialChar	Selects the special character cells in a workbook.
XLSelectTables	Selects the tables in a workbook.
WorkbookExtensions	Extensions for workbook class.

Table 18: Excel.Common Properties Folder

File Name	Description
AssemblyInfo.cs	General information about an assembly is controlled through the following attributes: AssemblyTitle, AssemblyDescription, AssemblyConfiguration, AssemblyCompany, AssemblyProduct, AssemblyCopyright, and CLSCompliant.
Resources.Designer.cs	Use caution when modifying this file. The code was generated by a tool and changes to this file may cause incorrect behavior and will be lost if the code is regenerated. Runtime version 4.0.30319.296.

5 Additional References

C# Coding Conventions (C# Programming Guide) -

[http://msdn.microsoft.com/en-us/library/ff926074\(v=VS.100\).aspx](http://msdn.microsoft.com/en-us/library/ff926074(v=VS.100).aspx)

Design Guidelines for Developing Class Libraries -

<http://msdn.microsoft.com/en-us/library/ms229042.aspx>